

Disparities in Health, Obesity and Access to Care Among an Insured Population of Asian and Pacific Islander Americans in Hawai'i

Deborah Taira Juarez ScD; Raynald A. Samoa MD; Richard S. Chung MD; and Todd B. Seto MD

Abstract

Objective: To examine differences in health status, obesity, and access among Asian and Pacific Islander Americans in Hawai'i using data from a 2007 health plan survey, including Caucasians, Puerto Ricans, American Indian and Alaska Natives, Chinese, Filipinos, Japanese, Koreans, Native Hawai'ians, Samoans, and Other Pacific Islanders.

Methods: Data were collected through a stratified random sample of adult members of a health plan in Hawai'i (n=119,563) who saw a physician in the past 12 months. Multivariable logistic and ordinary least squares regression analyses were used to examine racial/ethnic differences in health status, access, and obesity and the impact of obesity and access on health status, after controlling for age, gender, and education.

Results: The highest obesity rates were found among Samoans (50%), Puerto Ricans (37%), Native Hawai'ians (36%), and Other Pacific Islanders (35%). Puerto Ricans and Samoans reported the highest number of poor physical health days (5.4). Samoans reported the highest number of poor mental health days (4.4). Obesity had a stronger impact than access on self-reported health status.

Conclusion: Samoans had the highest rate of obesity, low health ratings, and a high number of days of poor health. Targeted interventions may be needed for this group.

Introduction

Eliminating health disparities was one of two main goals stated in Healthy People 2010.¹ A critical step in eliminating disparities involves obtaining baseline data for disaggregated Asian and Pacific Islander American sub-groups.² According to the year 2000 census, approximately half of Hawai'i residents were Asian and Pacific Islander Americans. Hawai'i's large Asian and Pacific Islander population, combined with its ethnic diversity, makes it an ideal setting to examine health disparities among Asian and Pacific Islander Americans. Rather than lumping all Asian and Pacific Islander Americans together, it is important to examine Asian and Pacific Islander sub-populations separately, due to substantial differences within the Asian and Pacific Islander American population related to obesity, health status, and healthcare access.

The goals of this study were: 1) to examine differences in health status, obesity, and access to care among Asian and Pacific Islander American subgroups compared to other ethnic groups in an insured population in Hawai'i and 2) to examine the impact of ethnicity, obesity, and access to care on self-reported health status.

Methodology

Study population: In the spring of 2007, a survey was sent to a random sample of adult members of a large health plan in Hawai'i (n=119,563) who had seen a physician in 2006. The response rate was 41%. All data were de-identified.

Patient characteristics: Information was obtained for age, gender, education, health status, and ethnicity. For ethnicity, members were asked to check all that apply from a list of 19 ethnic groups. These categories were chosen to be consistent with the Hawai'i Depart-

ment of Health's Hawai'i Health Surveillance Program. In most cases, members who marked more than one race or ethnicity were categorized as 'mixed.' The exceptions were that any member who marked Hawaiian was classified as Hawaiian. Data were displayed for the 10 largest groups, including Caucasians (n=8264), Puerto Ricans (n=275), American Indian and Alaska Native (n=472), Chinese (n=2853), Filipino (n=4576), Japanese (n=15182), Korean (n=705), Native Hawai'ian (n=4901), Samoan (n=169), and Other Pacific Islanders (n=305). All others were grouped as 'other race or ethnicity' and excluded from these analyses.

Obesity: Members were also asked to report their height in feet and inches and their weight. Body Mass Index was calculated from these self-reported measures. Obesity was defined as having a Body Mass Index greater than 30 kg/m².

Access to Care: Access to care was measured using two questions. The items asked members how often they got an appointment for regular or urgent care as soon as they wanted. The response set was a 0 to 10 scale. Responses to the two questions were averaged to obtain an overall access score. For the multivariate analyses, we divided access into three categories. Top access indicated that the member rated their access 10 out of 10 on both questions. Medium access was defined of having an average access of 7 to 9.9. Mean scores below 7 were categorized as poor access. These categories were defined based on the distribution of data with 45% of members having top access scores, 25% having medium access scores and 22% having low access scores.

Health Status Questions: Health status measures included self-reported healthy days, developed by the Centers for Disease Control.³ Members were asked how many days during the past month was their physical or mental health not good. In addition, members were asked to rate their health as poor, fair, good, very good, or excellent.

Statistical analyses: We examined the characteristics of patients related to health status, obesity, and access to care. Multivariable logistic and ordinary least squares regression analyses were used to examine racial and ethnic differences in health status and obesity and the impact of ethnicity, obesity and access on health, after controlling for age, gender, and education. Terms examining interaction between ethnicity and obesity were tested, but dropped from the models due to lack of statistical significance. Models were estimated using Stata 9.0 (College Station, Texas).

Results

Patient characteristics: Demographic characteristics differed by race and ethnicity with Japanese [mean age 65 (STD 16)] and Chinese [mean age 63 (STD 17)] members being the oldest and Samoans [mean age 47 (STD 15)] and Other Pacific Islanders [mean age 49 (15)] being the youngest (Table 1). Education level differed con-

Table 1.— Racial and ethnic differences in patient characteristics, health status, and obesity.

Race/ Ethnicity	Age [Mean (std dev)]	Female (%)	Days of Poor Physical Health [Mean (std dev)]	Days of Poor Mental Health [Mean (std dev)]	Very Good or Excellent Health (%)	Obese (%)
Caucasian (n=8264)	59 (15)	62%	3.7 (7.5)	2.6 (6.4)	56%	18%
Puerto Rican (n=275)	62 (15)	62%	5.4 (9.0)	3.9 (8.0)	34%	37%
American Indian or Alaska Native (n=472)	53 (15)	70%	4.9 (8.2)	3.9 (7.9)	53%	26%
Chinese (n=2853)	63 (17)	62%	3.1 (6.8)	1.8 (5.2)	38%	7%
Filipino (n=4576)	56 (17)	66%	3.5 (7.3)	2.3 (6.3)	38%	14%
Japanese (n=15182)	65 (16)	63%	3.4 (7.3)	1.9 (5.7)	33%	12%
Korean (n=705)	60 (17)	73%	4.0 (7.5)	2.7 (6.4)	32%	5%
Native Hawaiian (n=4901)	54 (17)	66%	4.1 (7.7)	3.0 (7.0)	36%	36%
Samoan (n=169)	49 (15)	59%	5.4 (8.3)	4.4 (8.1)	38%	50%
Other Pacific Islander (n=305)	47 (16)	64%	4.1 (8.0)	3.0 (6.7)	42%	35%

siderably with Caucasians, American Indians/Alaska Natives, and Chinese being the most likely to have post high school education. Puerto Rican, Japanese, and Samoan members had least amount of education.

Obesity: The prevalence of obesity differed considerably between racial and ethnic groups. Only 5 percent of Koreans and 7 percent of Chinese were obese, compared to 50 percent of Samoans (Table 1). Ethnic differences in obesity persisted after adjustment for other factors. After controlling for age, gender, and education level, the groups with the highest odds of obesity were Samoans (OR=2.8 relative to Caucasians), Native Hawaiians (OR=2.1) and Puerto Ricans (OR=2.0, Figure 1).

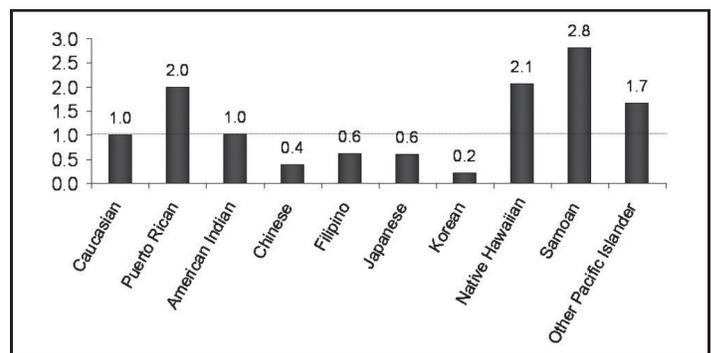


Figure 1.— Odds Ratio of Obesity by Race/Ethnicity, Adjusted

p<0.05 for all except American Indian; *Adjusted for age, gender, and education

Health status: There were striking differences in health status ratings related to race and ethnicity (Table 1, Figure 2). Approximately 56 percent of Caucasians rated their health as very good or excellent, compared to 32 percent of Koreans, 33 percent of Japanese, and 34 percent of Puerto Ricans (Table 1). After adjustment, Koreans were least likely to report being in very good or excellent health (OR 0.46 relative to Caucasians, Figure 2). Japanese, Native Hawaiians, and Filipinos were the next lowest groups in terms of self-reported health status. Groups with best self-reported health status were Caucasians and American Indian/Alaska Natives.

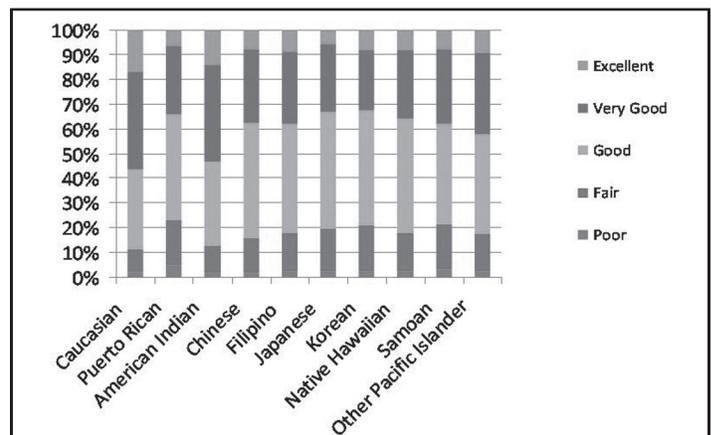


Figure 2.— Patient Ratings of Health Status by Race and Ethnicity

The adjusted odds ratios of very good or excellent health, relative to Caucasians, were 0.78 for Puerto Ricans, 1.02 (NS) for American Indians, 0.57 for Chinese, 0.53 for Filipinos, 0.51 for Japanese, 0.46 for Koreans, 0.52 for Native Hawaiians, 0.59 for Samoans, and 0.73 for Other Pacific Islanders.

Puerto Ricans and Samoans reported the highest number of poor physical health days in the past 30 days (5.4), followed by American Indian/Alaska Native (4.9 days, Table 1). Chinese (3.1 days), Japanese (3.4 days), and Caucasians (3.7 days) had the lowest number of poor physical health days.

Samoans also reported the highest number of poor mental health days (4.4), followed by American Indians/Alaska Natives and Puerto Ricans (3.9 days). Chinese and Japanese had the lowest number of poor mental health days, at 1.8 and 1.9, respectively.

Access to Care: Analysis of variance revealed significant differences in access to care related to race and ethnicity. Koreans and Filipinos had the lowest access ratings (7.8 out of 10), followed by Samoans (8.0) and Other Pacific Islanders (8.1), and Chinese (8.2). Groups with the highest ratings of access to care were Puerto

Ricans (8.6) and Native Hawaiians (8.4). Caucasians, American Indians and Alaska Natives, and Japanese were in the middle with average ratings of 8.3.

Table 2.— Relationship Between Obesity, Access, and Health Status						
	Days Physical Health Not Good		Days Mental Health Not Good		Odds of Poor, Fair, or Good Health Rating	
	Coef	p-value	Coef	p-value	OR	p-value
Age						
30-39	0.14	0.52	-0.16	0.40	1.3	<0.001
40-49	0.87	<0.001	-0.23	0.18	1.5	<0.001
50-59	1.1	<0.001	-0.35	0.03	1.9	<0.001
60-69	0.85	<0.001	-1.3	<0.001	2.2	<0.001
70-79	1.4	<0.001	-1.4	<0.001	3.2	<0.001
80+	2.3	<0.001	-.74	<0.001	4.9	<0.001
Female	0.16	0.06	0.34	<0.001	1.0	0.75
Education						
High sch grad	-0.05	0.60	.16	0.08	1.2	<0.001
College grad	-0.53	<0.001	-.54	<0.001	0.75	<0.001
Post-college	-0.49	<0.001	-.69	<0.001	0.55	<0.001
Race/ethnicity						
Puerto Rican	0.88	0.01	0.96	0.002	1.1	0.34
American Indian or Alaska Native	0.97	0.003	0.65	0.02	0.90	0.26
Chinese	-0.66	<0.001	-0.95	<0.001	1.7	<0.001
Filipino	-0.23	0.12	-0.68	<0.001	1.7	<0.001
Japanese	-0.45	<0.001	-0.70	<0.001	1.9	<0.001
Korean	0.27	0.40	-0.03	0.89	2.2	<0.001
Native Hawaiian	0.08	0.58	-0.09	0.42	1.6	<0.001
Samoan	1.5	0.02	1.0	0.053	1.3	0.16
Other Pacific Isle	-0.06	.89	-0.22	0.58	1.1	0.34
Obese	1.3	<0.001	0.50	<0.001	2.6	<0.001
Access						
Medium access	0.39	<0.001	0.12	0.20	1.1	0.005
Top access	-0.31	0.002	-0.41	<0.001	0.75	<0.001

Factors Related to Health Status: Obesity was a strong predictor of poor health status, even after adjustment for other factors. In the multivariable model with poor physical health days as the dependent variable, the coefficient on obesity was 1.3, suggesting that obese members tended to have 1.3 more days of poor health in a month than non-obese individuals (Table 2). Obese individuals also tended to have 1/2 a day more of poor mental health than the non-obese. In addition, the odds of their reporting poor to good health (as opposed to very good or excellent) was OR=2.6, 95%CI [2.4, 2.8].

Racial and ethnic disparities in health status also persisted after adjustment for other factors. After controlling for age, gender, education, obesity and access, Samoans had 1.5 more days of poor physical health a month than Caucasians. Puerto Ricans (0.88) and American Indian and Alaska Natives (0.97) also reported significantly more poor physical health days than Caucasians, while Chinese and Japanese members reported significantly fewer.

Mental health status also differed significantly by race and ethnicity. Again, Puerto Ricans (coef=0.96) and American Indian and Alaska Natives (coef=0.65) reported significantly more poor mental health days. Samoans also had more poor mental health days (coef=1.0),

with a p-value of 0.053. Chinese, Filipino, and Japanese members had significantly fewer poor mental health days than Caucasians, after adjustment.

While Asian Americans tended to report fewer days of poor physical health, they were significantly more likely to rate their health as poor, fair, or good, compared to Caucasians. Odds ratios of poor/fair/good health ratings were 2.2 for Koreans, 1.7 for Chinese, 1.9 for Japanese, and 1.7 for Filipinos, compared to Caucasians.

Self-reported access to care had a smaller but significant impact on health status. Those with medium ratings of access (scores of 7 to 9.9) tended to have worse health status than those with low ratings of access (scores less than 7), while those with the best access (ratings of 10 out of ten) had better health status than members with low ratings of access.

As members aged, their physical health reports and ratings worsened; however, their mental health improved. Higher education levels were associated with better mental and physical health. Women had 0.3 more days of poor mental health per month than men. Gender was not significantly associated with physical health, after adjustment for other factors.

Discussion

There are over 13 million Asian and Pacific Islander Americans in the United States. When examining health disparities, it is important to examine Asian and Pacific Islander sub-groups separately, as there are vast differences between groups in health status, access, and obesity.

For instance, we know from the World Health Organization (WHO) that obesity rates in China and Japan are approximately 5% compared to over 75% in Samoa.⁴ While few data are available for Asian and Pacific Islander American sub-groups in the United States, we know that Asian Americans have the lowest rates of obesity (5% compared to 22% of whites).⁵ In contrast, the 2008 Hawai'i Behavioral Risk Factor Surveillance System found the highest rates of obesity among Native Hawaiians (44%), followed by "others" (24%), whites (21%), Filipinos (18%) and Japanese (15%). They were not able to break out other ethnic sub-groups, including Samoans, due to small numbers ($n < 50$).⁶ The California Health Information Survey (CHIS) reported the highest obesity rates among Samoan children.⁷ However, when Asian and Pacific Islander Americans are grouped together, obesity rates range around 39%.⁸ This overall rate masks the extremely high prevalence of obesity in Pacific Islanders. The ethnic diversity in Hawai'i enabled us in this study to examine the health status and obesity rates of Asian and Pacific Islander sub-groups that are not typically included in health disparity analyses.

Findings from this study echo earlier reports of the disproportionate rate of obesity in Pacific Island populations.^{6,7,9} Samoans, Puerto Ricans, and Native Hawaiians had the highest rates of obesity at 50%, 37% and 36%, respectively followed by Other Pacific Islanders at 35%. Samoans also had the highest number of poor physical and mental health days, despite being the youngest group, on average, with a mean age of 47 years.

General health ratings also differed considerably by race and ethnicity (Figure 2). Caucasians were much more likely than other groups to rate their health as very good or excellent, while Asian and Pacific Islander Americans were more likely to rate their health middle-of-the-road (i.e. good).

An interesting finding was the seeming lack of consistency between reports of unhealthy days and overall ratings of health. For example, Caucasians reported 3.7 days of poor physical health and 2.6 days of poor mental health; however, 56% of Caucasians rated their health as very good or excellent. In contrast, Chinese members report 3.1 days of poor physical health and 1.8 days of poor mental health, yet only 38% rated their health as very good or excellent. Similarly, only 33% of Japanese members rated their health as very good or excellent, despite fewer poor physical (3.4) and mental (1.9) health days than Caucasians. Hence, Caucasians are rating their health status much higher than Asian Americans, while reporting more days of poor physical and mental health. More research is needed to determine whether there may be a reporting bias in unhealthy days or in ratings of health. Compared to Caucasians, do Asian Americans under-report poor mental health days due to cultural bias? Are Asian Americans less likely to rate health as excellent for reasons unrelated to health?

Koreans had the lowest health ratings. As health status ratings have been significantly associated with mortality, this group may need to be monitored to better understand areas of possible interven-

tion.^{10,11} Koreans also had the lowest ratings of access to care, along with Filipino Americans. Samoans and Other Pacific Islanders also had low ratings of access to care, compared to other groups. These findings are consistent with the results of the California Health Information Survey (CHIS).¹² This CHIS data found that 25% of Koreans had no usual source of medical care, 33% were uninsured and 62% reported having no dental health coverage. This study found significant differences in ratings of access, despite its focus on insured members, suggesting that barriers to access go beyond health insurance. Factors, such as type of employment, level of acculturation, and English language fluency, may affect ratings of access.

This study also found an association between obesity and poor health (both reports of unhealthy days and general health ratings) that persisted after adjustment for other factors. In contrast, a study utilizing the data from the Hawai'i BRFSS from 1998 to 2003 suggested that poor general health status in Polynesians, including Native Hawaiians and Samoans, was not independently associated with obesity.¹³ This discrepancy between studies might be explained by the fact that the Hawai'i BRFSS study adjusted for diabetes, hypertension, and physical activity, and obesity is highly correlated with all three of those factors.

There are several limitations to this study. Responses were from a survey with a 41% response rate, so it is unclear whether this would generalize to non-respondents. Second, all surveys were administered in English, again limiting the ability to generalize, particularly to those who are newer immigrants to Hawai'i. Third, there was no information on health-related behaviors and income level, which might have been correlated with ethnicity and have influenced health status. Finally, these data are from an insured population and the findings may not generalize to uninsured populations, particularly in terms of access to care.

Despite these limitations, it seems clear from this study that the high rates of obesity in Samoan, Native Hawaiians, and Other Pacific Islanders and the low health and access ratings by Koreans speak to very different health disparities within groups that had been traditionally grouped together. Thus, to close the health disparity gaps in the diverse groups that comprise the population of Asian and Pacific Islander Americans, studies will need to disaggregate their data to illustrate a realistic picture of disease prevalence and to develop targeted interventions for at risk populations. Further study is also needed to better understand the apparent discrepancy between reports of unhealthy days and general health status ratings.

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Authors' Affiliations:

- Hawai'i Medical Service Association (an independent licensee of the Blue Cross and Blue Shield Association), Honolulu, HI (D.T.J., R.S.C.)
- John A. Burns School of Medicine University of Hawai'i, Department of Public Health Studies, Honolulu, HI (D.T.J.)
- John A. Burns School of Medicine University of Hawai'i, Department of Medicine, Honolulu, HI; The Queen's Medical Center, Honolulu, HI (T.B.S.)
- Division of Diabetes, Endocrinology, and Metabolism, Duarte, CA (R.A.S.)

Correspondence to:

Deborah T. Juarez ScD
University of Hawai'i at Manoa
Department of Public Health Studies
1960 East-West Road
Honolulu, HI 96822
Email: dtjuarez@hawaii.edu

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